

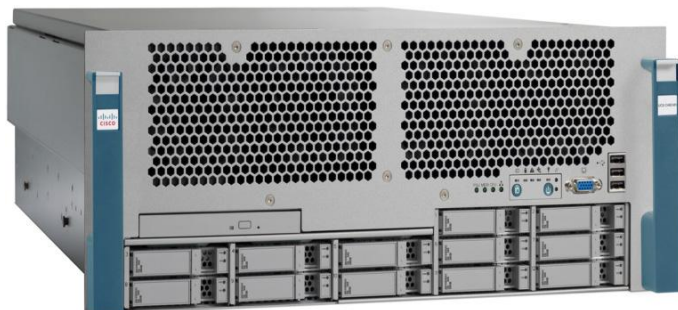
# Cisco UCS C460 M2 High-Performance Rack-Mount Server

## Overview

The Cisco UCS C460 M2 High-Performance Rack-Mount Server (Figure 1) is a four-rack-unit (4RU) server supporting the Intel® Xeon® processor E7-4800 product family, up to 1 terabyte (TB) of double-data-rate 3 (DDR3) memory in 64 slots, and 12 small form factor (SFF), hot-pluggable SAS and SATA disk drives.

Abundant I/O capability is provided by 10 PCI Express (PCIe) slots supporting the Cisco UCS C-Series network adapters, with an eleventh PCIe slot reserved for a hard disk drive array controller card. Additional I/O is provided by two Gigabit Ethernet LAN-on-motherboard (LOM) ports, two 10 Gigabit Ethernet ports, and two dedicated out-of-band (OOB) management ports.

**Figure 1.** Cisco UCS C460 M2 High-Performance Rack-Mount Server



|                                           |                                       |                                    |                             |                                     |                     |
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## Detailed Views

**Figure 2.** Front View of the Cisco UCS C460 M2 Server

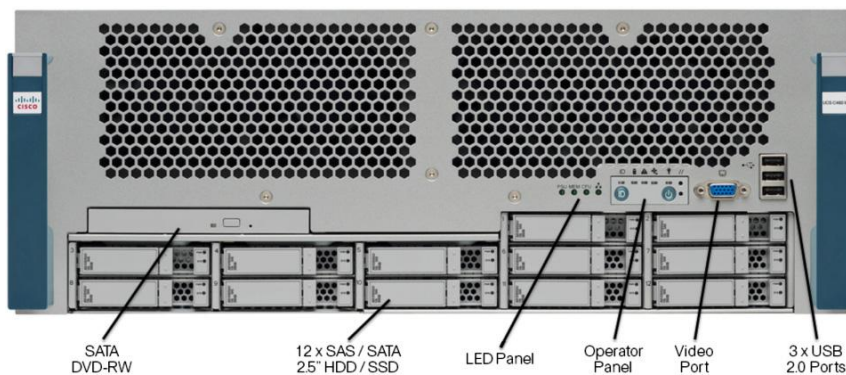
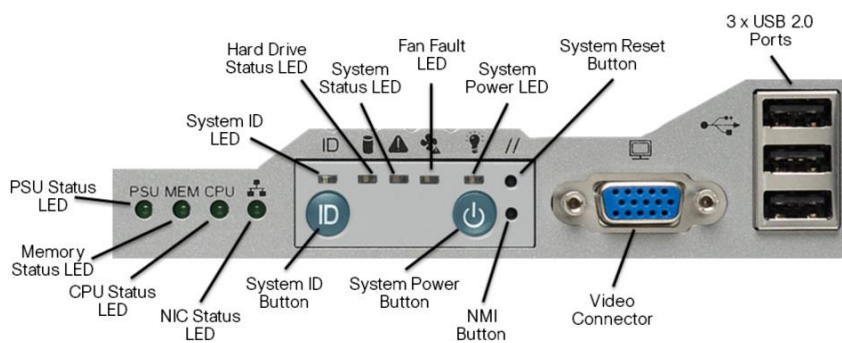


**Figure 3.** Detailed View of Front Panels on the Cisco UCS C460 M2 Server



|                                           |                                       |                                    |                             |                                     |                     |
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**Figure 4.** Rear View of the Cisco UCS C460 M2 Server

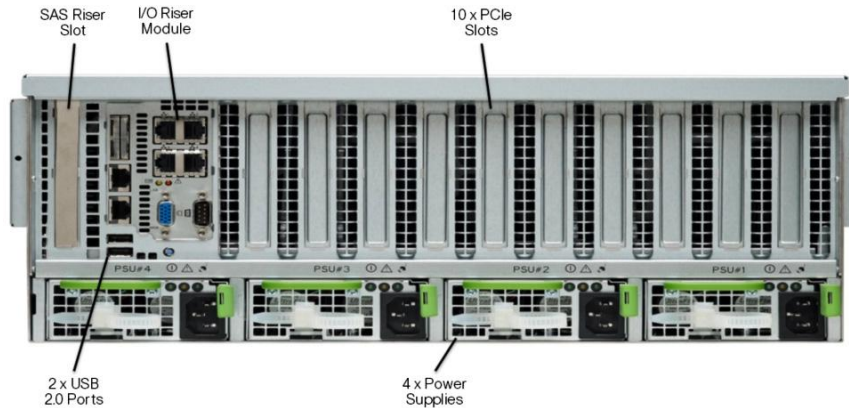
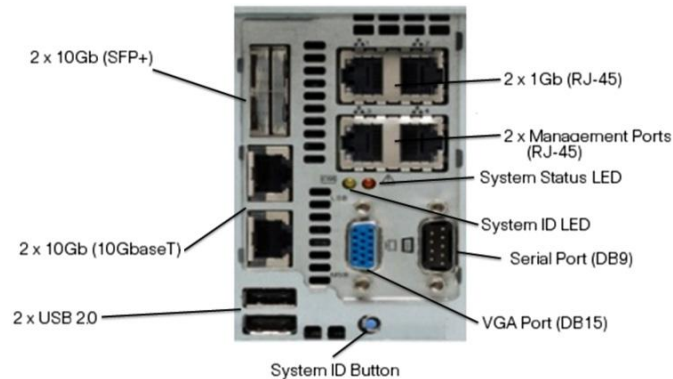


**Figure 5.** Detailed View of the I/O Riser Module on the Rear of the Cisco UCS C460 M2 Server



|                                           |                                       |                                    |                             |                                     |                     |
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## Base Unit Features

**Table 1.** Feature Specifications for the Cisco UCS C460 M2 Server

| Feature                                | Specification                                                                                                                                                                                 |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>CPU</b>                             | Up to four Intel® Xeon® E7-4800 Series processors                                                                                                                                             |
| <b>Chipset</b>                         | Intel® 7510 chipset                                                                                                                                                                           |
| <b>Memory</b>                          | 64 DIMM slots (up to 1 TB)                                                                                                                                                                    |
| <b>NIC</b>                             | Embedded dual-port Broadcom BCM57711 PCIe-based 10 Gigabit Ethernet controller and dual-port Broadcom BCM5709c Gigabit Ethernet                                                               |
| <b>Expansion slots</b>                 | 10 PCIe slots ( <i>see PCIe Slot Notes for details</i> )                                                                                                                                      |
| <b>Storage controller</b>              | LSI MegaRAID SAS 9260-8i, LSI Controller 9240-8i<br>LSI SAS2108 (Liberator) ROC ( <i>RAID-On-a-Chip</i> ) Controller, at 800 MHz<br>Hardware RAID ( <i>levels 0, 1, 5, 6, 10, 50 and 60</i> ) |
| <b>Internal storage devices</b>        | Up to 12 SAS / SATA hot-swappable hard disk drives (HDD) or solid-state drives (SSD)<br>Up to two optional, internal 2-GB eUSB devices                                                        |
| <b>Interfaces</b>                      | Serial, USB, VGA, PCIe, RJ-45, GG-45, Small Form-Factor Pluggable Plus (SFP+)                                                                                                                 |
| <b>Power subsystem</b>                 | Up to four 850W power supplies<br>(N+N, N+1, or No redundancy)                                                                                                                                |
| <b>Fans</b>                            | Eight 80mm hot-swappable fans                                                                                                                                                                 |
| <b>Integrated management processor</b> | Cisco UCS C-Series Integrated Management Controller (CIMC)<br>(with integrated video, KVM redirection, SIO, fan speed control, PECI, voltage monitoring)                                      |

|                                           |                                       |                                    |                             |                                     |                     |
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## Configuring the Cisco UCS C460 M2 Server

UCS C460 M2 base server. (required)

UCSC-BASE-M2-C460

### STEP 1: Select the CPU type.

Select two or four CPUs from this list:

- |                                                  |                 |
|--------------------------------------------------|-----------------|
| • 2.4 GHz Xeon E7-4870 130W 10C CPU/30MB cache   | UCS-CPU-E74870  |
| • 2.26 GHz Xeon E7-4860 130W 10C CPU/24MB cache  | UCS-CPU-E74860  |
| • 2.0 GHz Xeon E7-4850 130W 10C CPU/30MB cache   | UCS-CPU-E74850  |
| • 2.13 GHz Xeon E7-4830 105W 8C CPU/24MB cache   | UCS-CPU-E74830  |
| • 1.86 GHz Xeon E7-4807 95W 6C CPU/18MB cache    | UCS-CPU-E74807  |
|                                                  |                 |
| • 2.60 GHz Xeon E7-8837 130W 8C CPU/24MB cache   | UCS-CPU-E78837  |
|                                                  |                 |
| • 2.13 GHz Xeon E7-8867L 105W 10C CPU/30MB cache | UCS-CPU-E78867L |

|                                           |                                       |                                    |                             |                                     |                     |
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## STEP 2: Select the memory type.

Select a minimum of one and a maximum of 32 DIMM kits from the following list:

- |                                                                    |                 |
|--------------------------------------------------------------------|-----------------|
| • 8 GB DDR3-1333-MHz RDIMM/PC3-10600/2 x 4GB Kit/ Low-Dual Volt    | A02-M308GB3-2   |
| • 16 GB DDR3-1333-MHz RDIMM/PC3-10600/2 x 8GB Kit / Low-Dual Volt  | A02-M316GB3-2   |
|                                                                    |                 |
| • 32GB DDR3-1066MHz RDIMM/PC3-8500/2 x 16GB 4R Kit / Low-Dual Volt | A02-M332GB3-2-L |
|                                                                    |                 |
| • 8GB DDR3-1333MHz RDIMM/PC3-10600/2 x 4GB 2R Kit                  | A02-M308GD5-2   |
| • 16GB DDR3-1333MHz RDIMM/PC3-10600/2 x 8GB 2R Kit                 | A02-M316GD5-2   |
|                                                                    |                 |
| • Factory Memory Mirroring Option                                  | N01-MMIRROR     |

**Note:** Memory mirroring is available only when banks 1 and 2 are populated with identical DIMMs.

## STEP 3: Select the RAID controller option.

If your system includes SAS or SATA drives, you must choose a RAID controller.

- |                                                          |             |
|----------------------------------------------------------|-------------|
| • LSI Controller 9240-8i                                 | RC460-PL002 |
| ◦ Installs in dedicated SAS riser PCIe slot on a C460 M2 |             |
| ◦ Supports up to 12 SAS or SATA drives                   |             |
| ◦ Supports RAID 0, 1, 5, 10, 50                          |             |
| ◦ No battery backup option available                     |             |
|                                                          |             |
| • LSI Controller 9260-8i                                 | RC460-PL001 |
| ◦ Installs in dedicated SAS riser PCIe slot on a C460 M2 |             |
| ◦ Supports up to 12 SAS or SATA drives                   |             |
| ◦ Supports RAID 0,1,5,6,10, 50 or 60                     |             |
| ◦ Includes 512 MB of write cache                         |             |
| ◦ Battery backup option available                        |             |

|                                           |                                       |                                    |                             |                                     |                     |
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- LSI 6G MegaRAID 9280-4i4e PCIe Card UCSC-C-4I4E
  - Takes up one of five available PCIe slots
  - Supports up to sixteen SAS and/or SATA drives
  - Supports external JBOD expansion
  - Battery Back-Up Option Available
- Battery Backup Option RC460-LBBU

#### STEP 4:      **Select the 2.5-inch HDD drive type.**

Select a minimum of zero and a maximum of 12 drives from this list:

- 500 GB SATA 7.2k RPM SFF HDD/hot plug/C-Series drive sled R2XX-D500GCSATA
- 1 TB SATA 7.2k RPM SFF HDD/hot plug/C-Series drive sled A03-D1TBSATA
  
- 73 GB 6Gb SAS 15k RPM SFF HDD/hot plug/drive sled mounted A03-D073GC2
- 146 GB 6Gb SAS 15k RPM SFF HDD/hot plug/drive sled mounted A03-D146GC2
- 300 GB 6Gb SAS 10k RPM SFF HDD/hot plug/drive sled mounted A03-D300GA2
- 600 GB 6Gb SAS 10k RPM SFF HDD/hot plug/drive sled mounted A03-D600GA2

|                                           |                                       |                                    |                             |                                     |                     |
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## STEP 5:      **Select a factory-configured RAID setup.**

Most customers prefer to configure their own RAID setup.

If you would prefer that Cisco to configure the RAID, choose one of the following options:

- |                                                                                                     |             |
|-----------------------------------------------------------------------------------------------------|-------------|
| • RAID 0 (Striping)<br><i>Requires a minimum of one hard drive.</i>                                 | R2XX-RAID0  |
| • RAID 1 (Mirroring)<br><i>Requires exactly two hard drives with same size, speed and capacity.</i> | R2XX-RAID1  |
| • RAID 5<br><i>Requires a minimum of three HDDs, all with identical speed and capacity.</i>         | R2XX-RAID5  |
| • RAID 6<br><i>Requires a minimum of four HDDs, all with identical speed and capacity.</i>          | R2XX-RAID6  |
| • RAID 10<br><i>Requires a minimum of four HDDs, all with identical speed and capacity.</i>         | R2XX-RAID10 |

|           |                                 |                                       |                                    |                             |                                     |                     |
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## STEP 6: Select option cards.

Select option cards from the following list. You can select a maximum of 10 PCIe cards.

- |                                                                                                                  |              |
|------------------------------------------------------------------------------------------------------------------|--------------|
| • Cisco UCS P81E Virtual Interface Card/Dual port 10Gbps<br>(Max. 2 Supported in slots 1 & 2)                    | N2XX-ACPCI01 |
| • Broadcom NetXtreme II 5709 Quad Port Ethernet PCIe Adapter Card with<br>TCP Offload Engine (TOE) and iSCSI HBA | N2XX-ABPCI03 |
| • Broadcom NetXtreme II 57711 Dual Port 10 GbE PCIe Adapter Card with<br>TCP Offload Engine (TOE) and iSCSI HBA  | N2XX-ABPCI02 |
| • Emulex LightPulse LPe11002 4-Gbps Fibre Channel PCIe Dual Channel HBA                                          | N2XX-AEPCI03 |
| • Emulex Converged Network Adapter / Dual port 10Gb                                                              | N2XX-AEPCI01 |
| • Emulex 8Gb HBA (Light Pulse LP-e12002)                                                                         | N2XX-AEPCI05 |
| • Intel 10GbE Dual port Niantec Controller with Copper SFP+ Cable                                                | N2XX-AIPCI01 |
| • Intel Quad port GbE HBA                                                                                        | N2XX-AIPCI02 |
| • Mellanox Connect X-2 EN with dual 10GbE SFP+ ports                                                             | N2XX-AMPCI01 |
| • QLogic QLE8152 Dual Port 10-Gbps PCIe Converged Network Adapter (CNA)                                          | N2XX-AQPCI01 |
| • QLogic SANblade QLE2462 Dual Port 4-Gbps FC-to-PCI Express HBA                                                 | N2XX-AQPCI03 |
| • QLogic QLE2562 8Gb Dual Port Fibre Channel HBA                                                                 | N2XX-AQPCI05 |

## STEP 7: Select redundant power supply units.

In two-processor configuration, two power supplies come standard with the base chassis, and you can order up to two “redundant” power supplies. In a four-processor configuration, four power supplies come standard with the base chassis, and no extra power supplies are needed.

- |                                            |                 |
|--------------------------------------------|-----------------|
| • 850W Power Supply Unit for C-Series C460 | RC460-PSU2-850W |
|--------------------------------------------|-----------------|

|                                    |                                       |                                    |                             |                                     |                     |
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## STEP 8: Select the power cords. (optional)

You can select a maximum of two power cables from this list:

|                                                                    |                  |
|--------------------------------------------------------------------|------------------|
| • N5000 AC Power Cable, 6A, 250V, North America, 2.5m              | CAB-N5K6A-NA     |
| • N5000 AC Power Cable, 13A, 250V, North America, 2.5m             | CAB-AC-250V/13A  |
| • N5000 AC Power Cable, 6A, 250V, Power Strip Type                 | CAB-C13-C14-JMPR |
| • N5000 AC Power Cable, 10A, 250V, Argentina, 2.5m                 | SFS-250V-10A-AR  |
| • N5000 AC Power Cable, 10A, 250V, Australia, 2.5m                 | CAB-9K10A-AU     |
| • N5000 AC Power Cable, 10A, 250V, China, 2.5m                     | SFS-250V-10A-CN  |
| • N5000 AC Power Cable, 10A, 250V, Europe, 2.5m                    | CAB-9K10A-EU     |
| • N5000 AC Power Cable, 10A, 250V, India, 2.5m                     | SFS-250V-10A-ID  |
| • N5000 AC Power Cable, 10A, 250V, Israel, 2.5m                    | SFS-250V-10A-IS  |
| • N5000 AC Power Cable, 10A, 250V, Italy, 2.5m                     | CAB-9K10A-IT     |
| • N5000 AC Power Cable, 10A, 250V, Switzerland, 2.5m               | CAB-9K10A-SW     |
| • N5000 AC Power Cable, 10A, 250V, United Kingdom, 2.5m            | CAB-9K10A-UK     |
| • N5000 Power Cord, 125VAC 15A NEMA 5-15 Plug, North America, 2.5m | CAB-9K12A-NA     |
| • Power Cord Jumper, C13-C14 Connectors, 2 Meter Length            | CAB-C13-C14-2M   |
| • Power Cord, 3 PIN, Japan                                         | CAB-JPN-3PIN     |

## STEP 9: Order the cable management arm. (optional)

A rail kit is included with all Cisco UCS C460 M2 servers. The cable management arm (CMA) is used for cable management and hooks onto the rail kit.

|                         |             |
|-------------------------|-------------|
| • Cable Management Arm: | R460-CBLARM |
|-------------------------|-------------|

|                                    |                                       |                                    |                             |                                     |                     |
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## STEP 10: Order the internal Flash USB device. (optional)

You can order a maximum of two Flash USB devices.

- 2-GB internal Flash USB device

RC460-EUSB

## STEP 11: Select the operating system. (optional)

Various operating system options are available. Select from this list:

### SUSE Linux Enterprise Server

- SLES/1yr subscription/svcs required/0 media
- SLES/3yr subscription/svcs required/0 media

SLES-1A

SLES-3A

### Red Hat Enterprise Linux

- RHEL/2 Socket/1 Guest/1Yr Svcs Required
- RHEL/2 Socket/1 Guest/3Yr Svcs Required
- RHEL/2 Socket/4 Guest/1Yr Svcs Required
- RHEL/2 Socket/4 Guest/3Yr Svcs Required
- RHEL/2 Socket/U Guest/1Yr Svcs Required
- RHEL/2 Socket/U Guest/3Yr Svcs Required
- RHEL/4 Socket/1 Guest/1Yr Svcs Required
- RHEL/4 Socket/1 Guest/3Yr Svcs Required
- RHEL/4 Socket/4 Guest/1Yr Svcs Required
- RHEL/4 Socket/4 Guest/3Yr Svcs Required
- RHEL/4 Socket/U Guest/1Yr Svcs Required
- RHEL/4 Socket/U Guest/3Yr Svcs Required

RHEL-2S-1G-1A

RHEL-2S-1G-3A

RHEL-2S-4G-1A

RHEL-2S-4G-3A

RHEL-2S-UG-1A

RHEL-2S-UG-3A

RHEL-4S-1G-1A

RHEL-4S-1G-3A

RHEL-4S-4G-1A

RHEL-4S-4G-3A

RHEL-4S-UG-1A

RHEL-4S-UG-3A

|                                           |                                       |                                    |                             |                                     |                     |
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## RHEL Add-Ons

|                                                          |                |
|----------------------------------------------------------|----------------|
| • High-Availability/2 Socket/1Yr Svcs Required           | RHEL-HA-2S-1A  |
| • High-Availability/2 Socket/3Yr Svcs Required           | RHEL-HA-2S-3A  |
| • High-Availability/4 Socket/1Yr Svcs Required           | RHEL-HA-4S-1A  |
| • High-Availability/4 Socket/3Yr Svcs Required           | RHEL-HA-4S-3A  |
| • Resilient Storage With Ha /2 Socket/1 Yr Svcs Required | RHEL-RS-2S-1A  |
| • Resilient Storage With Ha /2 Socket/3 Yr Svcs Required | RHEL-RS-2S-3A  |
| • Resilient Storage With Ha /4 Socket/1 Yr Svcs Required | RHEL-RS-4S-1A  |
| • Resilient Storage With Ha /4 Socket/3 Yr Svcs Required | RHEL-RS-4S-3A  |
|                                                          |                |
| • Scalable File System/2 Socket/1 Yr Svcs Required       | RHEL-SFS-2S-1A |
| • Scalable File System/2 Socket/3 Yr Svcs Required       | RHEL-SFS-2S-3A |
| • Scalable File System/4 Socket/1 Yr Svcs Required       | RHEL-SFS-4S-1A |
| • Scalable File System/4 Socket/3 Yr Svcs Required       | RHEL-SFS-4S-3A |

## Windows Server

|                                                   |                  |
|---------------------------------------------------|------------------|
| • Windows Svr 2008 ST media (1-4CPU, 5CAL)        | MSWS-08-STHV     |
| • Windows Svr 2008 EN media (1-8CPU, 25CAL)       | MSWS-08-ENHV     |
| • Windows Svr 2008 ST media R2 ST (1-4CPU, 5CAL)  | MSWS-08R2-STHV   |
| • Windows Svr 2008 EN media R2 EN (1-8CPU, 25CAL) | MSWS-08R2-ENHV   |
|                                                   |                  |
| • Windows Svr 2008 R2-2 CPU-Data Center           | MSWS-08R2-DCHV2S |
| • Windows Svr 2008 R2-4 CPU-Data Center           | MSWS-08R2-DCHV4S |

## VMware Server

|                                                            |                |
|------------------------------------------------------------|----------------|
| • VMware vSphere Advanced (1 CPU), 1yr 24x7 support        | VMW-VS-ADV-1A  |
| • VMware vSphere Advanced (1 CPU), 3yr 24x7 support        | VMW-VS-ADV-3A  |
|                                                            |                |
| • VMware vSphere Enterprise (1 CPU), 1yr 24x7 support      | VMW-VS-ENT-1A  |
| • VMware vSphere Enterprise (1 CPU), 3yr 24x7 support      | VMW-VS-ENT-3A  |
| • VMware vSphere Enterprise Plus (1 CPU), 1yr 24x7 support | VMW-VS-ENTP-1A |
| • VMware vSphere Enterprise Plus (1 CPU), 3yr 24x7 support | VMW-VS-ENTP-3A |

|                                    |                                       |                                    |                             |                                     |                     |
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## Select an operating system media kit (optional)

|                                                   |                   |
|---------------------------------------------------|-------------------|
| • RHEL 6 Media Only (Multilingual)                | RHEL-6            |
| • SLES 11 media only (multilingual)               | SLES-11           |
| • Windows Svr 2008 ST media                       | MSWS-08-STHV-RM   |
| • Windows Svr 2008 EN media                       | MSWS-08-ENHV-RM   |
| • Windows Svr 2008 ST media R2 ST (1-4CPU, 5CAL)  | MSWS-08R2-STHV-RM |
| • Windows Svr 2008 EN media R2 EN (1-8CPU, 25CAL) | MSWS-08R2-ENHV-RM |
| • Windows Svr 2008 ST media R2 DC (1-8CPU, 25CAL) | MSWS-08R2-DCHV-RM |

## STEP 12: Select from a variety of value-added software. (optional)

|                                                          |                  |
|----------------------------------------------------------|------------------|
| • BMC BladeLogic CM for Virtualized Cisco Servers        | BMC-001          |
| • BMC Blade Logic Compliance, VM Bundle, 2 Socket Server | BMC-001-COMP     |
| • BMC BladeLogic CM for Physical Cisco Servers           | BMC-002          |
| • BMC Blade Logic Compliance, Single OS                  | BMC-002-COMP     |
| • BMC Bladelogic CM, Virtualized 4-Socket Server         | BMC-003          |
| • BMC Blade Logic Compliance, VM Bundle, 4 Socket Server | BMC-003-COMP     |
| • BMC BPPM Per Server                                    | BMC-012          |
| • VMware vCenter Server Standard, 1yr 24x7 support       | VMW-VCS-1A       |
| • VMware vCenter Server Standard, 3yr 24x7 support       | VMW-VCS-3A       |
| • Nexus 1000V License PAK for 1 Virtual Ethernet module  | N1K-VLEM-UCS-1   |
| • Nexus 1000V VSM Virtual Appliance Software             | N1K-CSK9-UCS-404 |

|                                    |                                       |                                    |                             |                                     |                     |
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## STEP 13: Select the appropriate services. (optional)

A variety of service options are available, as listed here.

### Cisco Unified Computing Mission Critical Support Service

This service delivers personalized technical account management, expedited technical support, and expert field support engineering for the Cisco Unified Computing System™

The Mission Critical Support Service provides a designated technical account manager (TAM) who acts as a strategic resource to help assure the unified computing environment runs at peak efficiency. Should a problem arise that threatens business continuity, the TAM provides crisis management leadership, and customer IT staff gets expedited access to Cisco's award-winning Technical Assistance Center (TAC).

Please note: This service has qualification criteria. There should be US\$1.2 million of UCS equipment, 200 blades, and a single location to qualify for this service level.

- |                                      |                 |
|--------------------------------------|-----------------|
| • UC Mission Critical 24x7x4 On-site | CON-UCM7-C460M2 |
| • UC Mission Critical 24x7x2 On-site | CON-UCM8-C460M2 |

### Cisco Unified Computing Support Service

For support of the entire Unified Computing System, Cisco offers the Cisco Unified Computing Support Service. This service provides expert software and hardware support to help sustain performance and high availability of the unified computing environment. This service includes access to the award-winning Cisco Technical Assistance Center (TAC) around the clock, from anywhere in the world.

For Cisco UCS blade servers, there is Smart Call Home, which provides proactive, embedded diagnostics, and real-time alerts. For systems that include the Cisco UCS Manager, the support service includes downloads of UCS Manager upgrades. The Unified Computing Support Service includes flexible hardware replacement options, including replacement in as little as two hours. There is also access to Cisco's extensive online technical resources to help maintain optimal efficiency and uptime of the unified computing environment.

- |                                  |                 |
|----------------------------------|-----------------|
| • UC Support 8X5XNBD Not on-site | CON-UCS1-C460M2 |
| • UC Support 8X5X4 Not on-site   | CON-UCS2-C460M2 |
| • UC Support 24x7x4 Not on-site  | CON-UCS3-C460M2 |
| • UC Support 24x7x2 Not on-site  | CON-UCS4-C460M2 |

|                                           |                                       |                                    |                             |                                     |                     |
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- UC Support 8X5XNBD On-site CON-UCS5-C460M2
- UC Support 8X5X4 On-site CON-UCS6-C460M2
- UC Support 24x7x4 On-site CON-UCS7-C460M2
- UC Support 24x7x2 On-site CON-UCS8-C460M2

### Cisco Unified Computing Warranty Plus Service

For faster parts replacement than is provided with the standard Cisco Unified Computing System warranty, Cisco offers the Cisco Unified Computing Warranty Plus Service. Customers can choose from several levels of advanced parts replacement coverage, including onsite parts replacement in as little as two hours. Warranty Plus provides remote access anytime to Cisco support professionals who can determine if a return materials authorization (RMA) is required.

- UC Warranty Plus 24x7x4 CON-UCW3-C460M2
- UC Warranty Plus 8X5XNBD On- Site CON-UCW5-C460M2

For more information, consult:

[Unified Computing Warranty and Support Services](#)

For a complete listing of available Services for Cisco Unified Computing System, visit:

[Unified Computing Services](#)

|                  |                                 |                                       |                                    |                             |                                     |                     |
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|                  | <a href="#">Option Cards</a>    | <a href="#">RAID</a>                  | <a href="#">Software</a>           | <a href="#">Services</a>    | <a href="#">Memory Notes</a>        |                     |
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## Product Notes

### Memory Notes

- A factory memory mirroring option is available.  
RAID 1 is to storage as memory mirroring is to memory. System administrators can configure their Cisco UCS C460 M2 server to maintain a mirrored copy of the information contained in memory.  
**Note:** Memory mirroring is available only when banks 1 and 2 are populated with identical DIMMs.
- There are 16 DIMM slots per CPU (eight per memory riser board). System performance is optimized when memory type and quantity is equal for all memory channels on all CPUs. (The UCS C460 M2 server has four memory channels per CPU)
- DIMMs must be inserted in pairs and from the same DIMM manufacturer. This is the reason for DIMM kits on the C460 M2. All DIMMs supported on the C460 M2 are registered (buffered) DIMMs.
- The following memory capacities are supported:
  - 2-processor configuration: Minimum 16 GB; maximum 512 GB
  - 4-processor configuration: Minimum 32 GB; maximum 1024 GB
- The Cisco UCS C460 M2 server has four processor sockets, and each socket has two memory risers.

|           |                                 |                                       |                                    |                             |                                     |                     |
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**Table 2.** CPU and Memory Riser Mapping

UCS C460 server has 4 processor sockets, each socket has 2 memory risers. The following table shows the placement of the CPU and their corresponding memory risers.

| Processor Socket | CPU4 |      | CPU3 |      | CPU2 |      | CPU1 |      |
|------------------|------|------|------|------|------|------|------|------|
| Risers           | Mem8 | Mem7 | Mem6 | Mem5 | Mem4 | Mem3 | Mem2 | Mem1 |

| Total System Memory Size in C460 M1 | # of DIMM pairs per processor socket (each socket has two risers) | DIMMs in Bank-1 slots on a riser (blue-color slots labeled as 1B, 1D, 1A, 1C) | DIMMs in Bank-2 slots on a riser (dark-color slots labeled as 2B, 2D, 2A, 2C) | Total memory size per CPU | DIMM Max Operation Speed | Total # of DIMMs in the system | Relative Performance                             |
|-------------------------------------|-------------------------------------------------------------------|-------------------------------------------------------------------------------|-------------------------------------------------------------------------------|---------------------------|--------------------------|--------------------------------|--------------------------------------------------|
| 32GB                                | 1 pair (1B, 1D in odd labeled risers)                             | 2x4GB                                                                         | 0                                                                             | 8GB                       | 1066MHz                  | 8                              | <b>Poor</b> (peak bandwidth: ~0.25x)             |
| 64GB                                |                                                                   | 2x8GB                                                                         | 0                                                                             | 16GB                      | 1066MHz                  | 8                              |                                                  |
| 128GB                               |                                                                   | 2x16GB                                                                        | 0                                                                             | 32GB                      | 1066MHz                  | 8                              |                                                  |
| 64GB                                | 2 identical pairs (1B, 1D in both riser)                          | 4x4GB                                                                         | 0                                                                             | 16GB                      | 1066MHz                  | 16                             | <b>Average</b> (peak bandwidth: ~0.50x)          |
| 128GB                               |                                                                   | 4x8GB                                                                         | 0                                                                             | 32GB                      | 1066MHz                  | 16                             |                                                  |
| 256GB                               |                                                                   | 4x16GB                                                                        | 0                                                                             | 64GB                      | 1066MHz                  | 16                             |                                                  |
| 128GB                               | 4 identical pairs (1B, 1D, 1A, 1C in both risers)                 | 8x4GB                                                                         | 0                                                                             | 32GB                      | 1066MHz                  | 32                             | <b>Good Performance</b> (peak bandwidth: ~0.94x) |
| 256GB                               |                                                                   | 8x8GB                                                                         | 0                                                                             | 64GB                      | 1066MHz                  | 32                             |                                                  |
| 512GB                               |                                                                   | 8x16GB                                                                        | 0                                                                             | 128GB                     | 1066MHz                  | 32                             |                                                  |
| 256GB                               | 8 identical pairs (both risers fully populated)                   | 8x4GB                                                                         | 8x4GB                                                                         | 64GB                      | 1066MHz                  | 64                             | <b>Best Performance</b> (peak bandwidth: 1.0)    |
| 512GB                               |                                                                   | 8x8GB                                                                         | 8x8GB                                                                         | 128GB                     | 1066MHz                  | 64                             |                                                  |
| 1TB                                 |                                                                   | 8x16GB                                                                        | 8x16GB                                                                        | 256GB                     | 1066MHz                  | 64                             |                                                  |
| 640GB                               | 8 mixed pairs (both risers fully populated)                       | 8x16GB                                                                        | 8x4GB                                                                         | 160GB                     | 1066MHz                  | 64                             | <b>Best Performance</b> (peak bandwidth: 1.0)    |
| 768GB                               |                                                                   | 8x16GB                                                                        | 8x8GB                                                                         | 192GB                     | 1066MHz                  | 64                             |                                                  |
| 384GB                               |                                                                   | 8x8GB                                                                         | 8x4GB                                                                         | 96GB                      | 1066MHz                  | 64                             |                                                  |

\* Mem1 for CPU1, Mem3 for CPU2, Mem5 for CPU3, and Mem7 for CPU4

|                                    |                                       |                                    |                             |                                     |                     |
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**Figure 6.** Memory Riser Board on the Cisco UCS C460 M2 Server



|                                           |                                       |                                    |                             |                                     |                     |
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## PCIe Slot Notes

As Figure 7 shows, the Cisco UCS C460 M2 Server has 10 PCIe slots available. There are a total of 11 slots; one is a dedicated SAS riser slot.

**Figure 7.** PCIe Slots on the Cisco UCS C460 M2 Server



**Table 3.** PCIe Card Specifications for the Cisco UCS C460 M2 Server

| PCIe slot | PCIe cards                         | PCIe slot | PCIe cards                         |
|-----------|------------------------------------|-----------|------------------------------------|
| 1         | PCIe Gen2 x8, 3/4 length           | 6         | PCIe Gen2 x8, 3/4 length, hot plug |
| 2         | PCIe Gen2 x8, 3/4 length, hot plug | 7         | PCIe Gen2 x8, 3/4 length, hot plug |
| 3         | PCIe Gen2 x8 1/2 length            | 8         | PCIe Gen2 x8, 3/4 length           |
| 4         | PCIe Gen2 x4, 1/2 length           | 9         | PCIe Gen1 x4, 1/2 length           |
| 5         | PCIe Gen2 x16, 3/4 length          | 10        | PCIe Gen1 x4, 1/2 length           |

|                           |                                 |                                       |                                    |                             |                                     |                     |
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## RAID Controller Notes

The SAS riser card is installed at PCIe slot 11, the SAS riser slot. The SAS riser card supports 12 SAS/SATA ports when used in conjunction with the SAS Expander backplane.

The SAS riser board (LSI MegaRAID SAS 9260-8i) supports the following features:

- Form factor: PCIe Low Profile (H x L) = 2.72 x 6.60 inches
- LSI SAS2108 (Liberator) ROC (RAID-On-a-Chip) Controller, at 800 MHz
- PCIe x8 card edge, also compatible with x16 lane slots, 5-Gbps or 2.5-Gbps serial transfer rate
- Two internal Mini SAS 4i connectors
- Eight channels of SAS/SATA at up to 6 Gbps
  - SAS rates of 6.0 Gbps and 3.0 Gbps
  - SATA rates of 3.0 Gbps and 1.5 Gbps
- Hardware RAID (levels 0, 1, 5, 6, 10, 50 and 60)
- Supports drive hot-plugging
- 5-Chip DDR2 on-board memory running at 800 MHz (64-bit with error-correcting code (ECC) for enhanced hardware RAID performance
- 512 MB on-board DDR2-800 cache arranged as 64Mx16 devices (1-Gb capacity)
- iBBU support: direct connected iBBU07 RAID Battery Back-up module for DDR2 DIMM refresh support during a power failure
- 8-MB CFI Compliant Flash ROM and a 32-kB NVSRAM (nonvolatile SRAM) for disk and drive setup information storage
- System Enclosure Specification (SES) connectivity through I2C cable or SGPIO
- UART and JTAG debug ports

Refer to *LSI MegaRAID SAS 9260-8i Product Specification* or visit the following site for a detailed description of this board:

[http://www.lsi.com/storage\\_home/products\\_home/internal\\_raid/megaraid\\_sas/6gb\\_s\\_value\\_line/sas9260-8i/index.html?locale=EN&remote=1](http://www.lsi.com/storage_home/products_home/internal_raid/megaraid_sas/6gb_s_value_line/sas9260-8i/index.html?locale=EN&remote=1)

|                                           |                                       |                                    |                             |                                     |                     |
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The SAS riser board (LSI MegaRAID SAS 9240-8i) supports the following features:

- Form factor: PCIe Low Profile (H x L) = 2.536 x 6.60 inches
- LSI SAS2008 PCI-Express-SAS/SATA I/O processor chip.
- PCIe x8 card edge, also compatible with x16 lane slots, 5-Gbps or 2.5-Gbps serial transfer rate
- Two internal Mini SAS 4i connectors
- Eight channels of SAS/SATA at up to 6 Gb per second
  - SAS rates of 6.0 Gb per second and 3.0 Gb per second
  - SATA rates of 3.0 Gb per second and 1.5 Gb per second
- Hardware RAID (levels 0, 1, 5, 10, 50 and JBOD mode)
- Supports drive hot-plugging
- System Enclosure Specification (SES) connectivity through I2C cable or SGPIO
- UART and JTAG debug ports

Refer to *LSI MegaRAID SAS 9240-8i Product Specification* or visit the following site for a detailed description of this board:

[http://www.lsi.com/storage\\_home/products\\_home/internal\\_raid/megaraid\\_sas/entry\\_line/megaraid\\_sas\\_9240-8i/index.html](http://www.lsi.com/storage_home/products_home/internal_raid/megaraid_sas/entry_line/megaraid_sas_9240-8i/index.html)

|                                           |                                       |                                    |                             |                                     |                     |
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## Technical Specifications

### Physical Dimension Specifications

**Table 4.** Physical Dimension Specifications for the Cisco UCS C460 M2Server

| Dimension       | Specification        |
|-----------------|----------------------|
| Height          | 6.8 in. (173.8 mm)   |
| Width           | 16.7 in. (424 mm)    |
| Depth           | 27.7 in. (704 mm)    |
| Front Clearance | 3 in.(76 mm)         |
| Side Clearance  | 1 in. (25 mm)        |
| Rear Clearance  | 6 in. (152 mm)       |
| Weight          | 110.23 lbs (50 kg) * |

**\*Note:** The system weight listed here is an estimate for a fully configured system and will vary depending on number of peripheral devices

### Power Specifications

**Table 5.** Power Specifications for the Cisco UCS C460 M2 Server

| Parameter     | Minimum  | Nominal      | Maximum  | Start Up VAC  | Power Off VAC |
|---------------|----------|--------------|----------|---------------|---------------|
| Voltage (115) | 90 Vrms  | 100-127 Vrms | 140 Vrms | 85VAC +/-4VAC | 75VAC +/-5VAC |
| Voltage (220) | 180 Vrms | 200-240 Vrms | 264 Vrms |               |               |
| Frequency     | 47 Hz    | 50/60 Hz     | 63 Hz    |               |               |

**Note:** AC input connector is an IEC 320 C-14 15A/250VAC power inlet.

For configuration-specific power specifications, use the Cisco UCS Power Calculator:

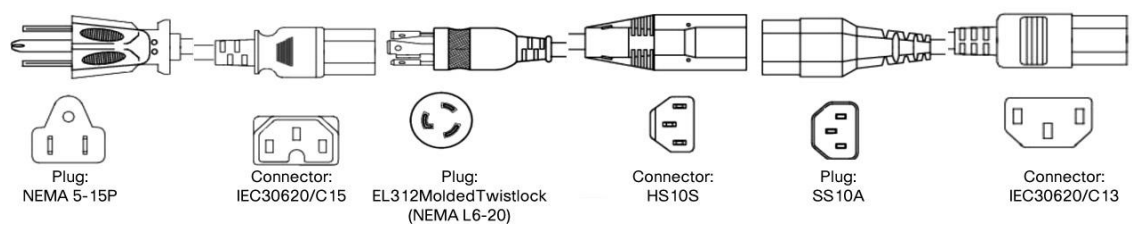
[http://www.cisco.com/assets/cdc\\_content\\_elements/flash/dataCenter/cisco\\_ucs\\_power\\_calculator/](http://www.cisco.com/assets/cdc_content_elements/flash/dataCenter/cisco_ucs_power_calculator/)

|                                           |                                       |                                    |                             |                                     |                     |
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**Table 6.** Plug and Connector Part Numbers for the Cisco UCS C460 M2 Server

| Part Number             | Description                            | Plug       | Connector    |
|-------------------------|----------------------------------------|------------|--------------|
| <b>CAB-9K12A-NA</b>     | 125VAC 13A NEMA 5-15 PLUG              | NEMA 5-15P | IEC60320/C15 |
| <b>CAB-AC-250V/13A</b>  | NEMA L6-20 250V/20A<br>IEC320/C13 PLUG | NEMA L6-20 | IEC60320/C13 |
| <b>CAB-C13-C14-JMPR</b> | RECESSED RECEPTICAL AC                 | SS10A      | HS10S        |
| <b>CAB-N5K6A-NA</b>     | 200/240V 6A                            | NEMA 6-15P | IEC60320/C13 |
| <b>R2XXDMYPWRCORD</b>   | NO POWER CORD                          | N/A        | N/A          |

**Figure 8.** Plugs and Connectors for the Cisco UCS C460 M2 Server



|                                    |                                       |                                    |                             |                                     |                     |
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## Environmental Specifications

**Table 7.** Environmental Specifications for the Cisco UCS C460 M2 Server

| Environment              | Specification                                                                                                                                                                                                               |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature operating    | 10°C to 35°C (50°F to 95°F)                                                                                                                                                                                                 |
| Temperature nonoperating | -40°C to 70°C (-40°F to 158°F)                                                                                                                                                                                              |
| Altitude                 | -30 to 1,500 m (-100 to 5,000 ft.)                                                                                                                                                                                          |
| Humidity nonoperating    | 95%, noncondensing at temperatures of 25°C (77°F) to 30°C (86°F)                                                                                                                                                            |
| Vibration nonoperating   | 2.2 Grms, 10 minutes per axis on each of the three axes                                                                                                                                                                     |
| Shock operating          | Half-sine 2 G, 11 ms pulse, 100 pulses in each direction, on each of the three axes                                                                                                                                         |
| Shock nonoperating       | Trapezoidal, 25 G, two drops on each of six faces ΔV: 175 inches/sec on bottom face drop, 90 inches/sec on other 5 faces                                                                                                    |
| Safety                   | UL60 950, CSA60 950, AS/NZS 3562, GB4943-1995, EN60 950 and 73/23/EEC, IEC 60 950, EMKO-TSE (74-SEC) 207/94, GOST-R 50377-92                                                                                                |
| Emissions                | Certified to FCC Class A; tested to CISPR 22 Class A, EN 55022 Class A and 89/336/EEC, VCCI Class A, AS/NZS 3548 Class A, ICES-003 Class A, GB9254-1998, MIC Notice 1997-42 Class A, GOST-R 29216-91 Class A, BSMI CNS13438 |
| Immunity                 | Verified to comply with EN55024, CISPR 24, GB9254-1998, MIC Notice 1997-41, GOST-R 50628-95                                                                                                                                 |
| Electrostatic discharge  | Tested to ESD levels up to 15 kilovolts (kV) air discharge and up to 8 kV contact discharge without physical damage                                                                                                         |
| Acoustic                 | <ul style="list-style-type: none"><li>• Sound power: &lt; 7.0 BA at ambient temperature &lt; 23° C measured using the Dome Method</li><li>• GOST MsanPiN 001-96</li></ul>                                                   |

## For More Information

Please visit <http://www.cisco.com/go/ucs>.



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